

**Indiana Course-Aligned Assessment  
Anatomy and Physiology – Blueprint**

<b>Standard</b>	<b>Description</b>	<b>Percent Range *</b>
1 – Levels of Organization: Cellular	Students will compare and contrast diffusion, osmosis, facilitated diffusion, active transport, endocytosis, and exocytosis. Students will understand the significance and processes of homeostasis, proteins in cell function and structure, and mitosis.	0-10%
2 – Levels of Organization: Tissue and Organs	Students will explain cell to cell interactions that produce tissues and organs, compare the structure, function and location of cells making various types of tissues. Students will describe epithelium, endocrine and exocrine glands, as well as body cavities, their membranes and organs, and the major body systems and functions.	0-10%
3 – Movement and Support: Integumentary	Students will describe the structure and layers of skin, accessory structures, functions, as well as analyzing diseases associated with the integumentary system.	0-10%
4 – Movement and Support: Skeletal	Students will describe the structures and function of the typical long bone and its component parts. Students will distinguish between the axial and appendicular skeleton and identify and name major bones and features. Students will compare and contrast compact and spongy bone, describe major types of joints, and analyze the effects of pressure, movement, toque, tension, and elasticity on the body.	0-10%
5 – Movement and Support: Muscular	Students will name and describe the components of skeletal muscle and explain the process for muscle contraction and relaxation. Students will describe the motor unit, neuromuscular junction, neurotransmitters, and distinguish between isotonic and isometric contraction. They will identify major muscles and movements associated with each muscle and understand the process of hypertrophy and atrophy.	5-15%
6 – Integration and Coordination: Nervous	Students will distinguish the types of neurons, neuron parts, and neuroglia. Students will describe the function and parts of oligodendrocytes, Schwann cells, myelin sheath, meninges, neurotransmitters, ions, brain, spinal cord, cerebrospinal fluid, brain stem, diencephalon, cerebrum, and cerebellum. Student should be able to discuss resting potential and action potential mathematically and physiologically. Describe the characteristics of the autonomic nervous system with the somatic nervous system. Compare and contrast parasympathetic and sympathetic divisions of autonomic nervous system.	5-15%
7 – Integration and Coordination: Somatic and Special Senses	Explain stimulus signaling to the brain and receptor adaptation. Describe the structure and function of the following: olfactory and taste receptors cells, the eye, rods, cones, the parts of the ear with regards to transmission of sound as well as balance and proprioception.	0-10%

8 – Integration and Coordination: Endocrine	Students will discuss endocrine and exocrine glands, the nature and function of hormones, and chemical signaling. Students will describe the structure and function of hypothalamus-pituitary complex and hormones associated with it as well as glands not under the control of the HPC. Students will understand how stress affects the endocrine system and its parts.	5-15%
9 – Transport: Blood	Students will be able to describe the components of blood as well as their functions, explain blood types and agglutination, and the process of clotting.	0-10%
10 – Transport: Cardiovascular	Students will describe the structures and functions of blood vessels, the heart, and the action potential in relation to cardiac muscle. Students will be able to discuss the baroreceptor reflex in regulation of blood pressure and the adjustments the cardiovascular system makes during exercise.	5-15%
11 – Transport: Lymphatic and Immunity	Students will discuss the structure and function of the lymphatic system, the different types of pathogens and strategies to rid those pathogens, and inflammation. Students will also describe the development of B and T lymphocytes and the role of antigens, antibodies, and complement.	0-10%
12 – Absorption and Excretion: Digestive	Students will be able to identify and describe the structures, functions, and enzymes of the GI tract and accessory organs. Students will explain the roles of lacteals and hepatic portal vein. Students will describe the regulation of enzymes and bicarbonate in pancreatic juice as well as the difference between metabolic and respiratory acidosis and alkalosis.	0-10%
13 – Absorption and Excretion: Respiratory	Students will explain inspiration, expiration, and the roles various muscles during those processes. Students will compare the percentages of oxygen and carbon dioxide in external air to concentrations in alveoli and capillaries. Students will use a spirometer and explain the data it produces. They will describe neuronal networks controlling respiration making note of chemoreceptors and how they affect respiration in response to low arterial oxygen partial pressure, high arterial carbon dioxide and low arterial pH.	0-10%
14 – Absorption and Secretion: Urinary	Students will describe the structures of the kidney, nephrons and their functions and explain the composition of plasma and ultrafiltrate. Explain juxtaglomerular cells and their roles, the neural basis of micturition and the function of sphincters. Students will discuss the balance of body fluids and how they are lost and gained, how the kidneys respond, and how food and metabolism affect pH of bodily fluids.	0-10%
15 – Life Cycle: Reproduction	Students will discuss the structures and function of male and female reproductive system. They will compare oogenesis and spermatogenesis, describe the hormones and gonadotropins, and explain the menstrual cycle. Students will describe the process of fertilization and maturation of the fertilized egg and the changes in the breast leading to lactation.	5-15%

\* This range represents the approximate emphasis for each reporting category on the assessment.